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MEMORANDUM FOR THE RECORD

SUBJECT: Senate Armed Services Committee Interest in Hersh  
Story re "Rainmaking"

1. This morning John Goldsmith, of the Senate Armed Services Committee staff, called to say that the New York Times story by Seymour Hersh of 3 July 1972 (copy attached) was attracting considerable interest and would no doubt be the subject of formal inquiry during upcoming Senate deliberations. He said the subject might be brought up in connection with discussion of the pending "end the war" amendment to the Foreign Assistance Authorization bill, and almost certainly would come up in connection with the discussion of Indochina when the Defense Procurement bill came up.

2. Goldsmith said he wanted to let us know that for the above reasons he felt he should call the matter to the attention of Chairman Stennis, and was therefore preparing a note for Stennis (now out of town) suggesting that Stennis get himself briefed on the subject and be forearmed with information necessary to respond to the questions which are likely to come up.

3. I told Goldsmith that I knew nothing about the substance of these allegations but appreciated his alerting us.

[Redacted Signature]

JOHN M. MAURY  
Legislative Counsel

25X1A

Att.

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# Rainmaking Is Used As Weapon by U.S.

## Cloud Seeding in Indochina Confirmed— Chemical Also Employed to Foil Radar

By SEYMOUR M. HERSH  
Special to The New York Times

WASHINGTON, July 2—The United States has been secretly seeding clouds over North Vietnam, Laos and South Vietnam to increase and control the rainfall for military purposes.

Government sources, both civilian and military, said during an extensive series of interviews that the Air Force cloud-seeding program has been aimed most recently at hindering movement of North Vietnamese troops and equipment and suppressing enemy anti-aircraft missile fire.

The disclosure confirmed growing speculation in Congressional and scientific circles about the use of weather modification in Southeast Asia. Despite years of experiments with rainmaking in the United States and elsewhere, scientists are not sure they understand its long-term effect on the ecology of a region.

### Some Opposed Program

The weather manipulation in Indochina, which was first tried in South Vietnam in 1963, is the first confirmed use of meteorological warfare. Although it is not prohibited by any international conventions on warfare, artificial rainmaking has been strenuously opposed by some State Department officials.

It could not be determined whether the operations were being conducted in connection with the current North Vietnamese offensive or the renewed American bombing of the North.

### Effectiveness Doubted

Beginning in 1967, some State Department officials protested that the United States, by deliberately altering the natural rainfall in parts of Indochina, was taking environmental risks of unknown proportions. But many advocates of the operation have found little wrong with using weather modification as a military weapon.

"What's worse," one official asked, "dropping bombs or rain?"

All of the officials interviewed said that the United States did not have the capability to cause heavy flooding during the summer in the northern parts of North Vietnam, where serious flooding occurred last year.

Officially, the White House and State Department declined comment on the use of meteorological warfare. "This is one of those things where no one is going to say anything," one official said.

Most officials interviewed agreed that the seeding had accomplished one of its main objectives — muddying roads and flooding lines of communication. But there were also many military and Government officials who expressed doubt that the project had caused any dramatic results.

The sources, without providing details, also said that a method had been developed for treating clouds with a chemical that eventually produced an acidic rainfall capable of fouling the operation of North Vietnamese radar equipment used for directing surface-to-air missiles.

In addition to hampering SAM missiles and delaying North Vietnamese infiltration, the rainmaking program had the following purposes:

• Providing rain and cloud cover for infiltration of South Vietnamese commando and intelligence teams into North Vietnam.

• Serving as a "spoiler" for North Vietnamese attacks and raids in South Vietnam.

• Altering or tailoring the rain patterns over North Vietnam and Laos to aid United States bombing missions.

• Diverting North Vietnamese men and material from military operations to keep muddied roads and other lines of communication in operation.

The cloud-seeding operations necessarily were keyed to the

two main monsoon seasons that affect Laos and Vietnam. "It was just trying to add on to something that you already got," one officer said.

Military sources said that one main goal was to increase the duration of the southwest monsoon, which spawns high-rising cumulus clouds — those most susceptible to cloud seeding — over the panhandle areas of Laos and North Vietnam from May to early October. The longer rainy season thus would give the Air Force more opportunity to trigger rainstorms.

"We were trying to arrange the weather pattern to suit our convenience," said one former Government official who had detailed knowledge of the operation.

According to interviews, the Central Intelligence Agency initiated the use of cloud-seeding over Huo, in the northern part of South Vietnam. "We first used that stuff in about August of 1963," one former C.I.A. agent said, "when the Diem regime was having all that trouble with the Buddhists."

"They would just stand around during demonstrations when the police threw tear gas at them, but we noticed that when the rains came they wouldn't stay on," the former agent said.

"The agency got an Air America Beechcraft and had it rigged up with silver iodide," he said. "There was another demonstration and we seeded the area. It rained."

A similar cloud-seeding was carried out by C.I.A. aircraft in Saigon at least once during the summer of 1964, the former agent said.

### Expanded to Trail

The Intelligence Agency expanded its cloud-seeding activities to the Ho Chi Minh supply trail in Laos sometime in the middle nineteen-sixties, a number of Government sources said. By 1967, the Air Force had become involved although, as one former Government official said, "the agency was calling all the shots."

"I always assumed the agency had a mandate from the White House to do it," he added.

A number of former CIA, and high-ranking Johnson Administration officials depicted the operations along the trail as experimental.

The state of the art had not yet advanced to the point where it was possible to predict the results of a seeding operation with any degree of confidence, one Government official said. "We used to go out flying around and looking for a certain cloud formation," the official said. "Once we dumped

seven inches of rain in two hours, on one of our Special Forces camps."

Despite the professed skepticism on the part of some members of the Johnson Administration, military men apparently took the weather modification program much more seriously.

According to a document contained in the Pentagon papers, the Defense Department's secret history of the war, weather modification was one of seven basic options for stepping up the war that were presented on request by the Joint Chiefs of Staff to the White House in late February, 1967.

The document described the weather program over Laos — officially known as Operation Pop-Eye — as an attempt "to reduce trafficability along infiltration routes."

### Authorization Needed

It said that Presidential authorization was "required to implement operational phase of weather modification process previously successfully tested and evaluated in same area." The brief summary concluded by stating that "risk of compromise is minimal."

A similar option was cited in another 1967 working document published in the Pentagon papers. Neither attracted any immediate public attention.

The Laos cloud-seeding operations did provoke, however, a lengthy and bitter, albeit secret, dispute inside the Johnson Administration in 1967. A team of State Department attorneys and officials protested that the use of cloud-seeding was a dangerous precedent for the United States.

"I felt that the military and agency hadn't analyzed it to determine if it was in our interest," one official who was involved in the dispute said. He also was concerned over the rigid secrecy of the project, he said, "although it might have been all right to keep it secret if you did it once and didn't want the precedent to become known."

The general feeling was summarized by one former State Department official who said he was concerned that the rainmaking "might violate what we considered the general rule of the thumb for an illegal weapon of war — something that would cause unusual suffering or disproportionate damage." There also was concern, he added, because of the unknown ecological risks.

A Nixon Administration official said that he believed the first use of weather modification over North Vietnam was in late 1968 or early 1969 when rain was increased

continued

ability of an aircraft to hit American jets in the panhandle region near the Laotian border.

Over the next two years, this official added, "it seemed to get more important--the reports were coming more frequently."

It could not be learned how many specific missions were carried out in any year.

One well-informed source said that Navy scientists were responsible for developing a new kind of chemical agent effective in the warm stratus clouds that often shielded many key antiaircraft sites in northern parts of North Vietnam.

The chemical, he said, "produced a rain that had an acidic quality to it and it would foul up mechanical equipment--like radars, trucks and tanks."

"This wasn't originally in our planning," the official added, "it was a refinement."

Apparently, many Air Force cloud-seeding missions were conducted over North Vietnam and Laos simply to confuse or "attenuate"--a word used by many military men--the radar equipment that controls anti-aircraft missiles. The planes used for such operations, C-130's, must fly at relatively slow speeds and at altitudes no greater than 22,000 feet to disperse the rainmaking chemicals effectively.

A number of officials confirmed that cloud seeding had been widely used in South Vietnam, particularly in the north along the Laos border. "We tried to use it in connection with air and ground operations," a military officer explained.

One Government official explained more explicitly that "if you were expecting a raid from their side, you would try to control the weather to make it more difficult." This official estimated that more than half of the actual cloud-seeding operations in 1969 and 1970 took place in South Vietnam.

Much of the basic research was provided by Navy scientists, and the seeding operations were flown by the Air Weather Service of the Air Force.

By 1967, or possibly earlier, the Air Force flights were originating from a special operations group at Udorn air base in Thailand. No more than four C-130's, and usually only two, were assigned in the highly restricted section of the base. Each plane was capable of carrying out more than one mission on one flight.

One former high-ranking official said in an interview that by the end of 1971 the program, which had been given at least three different code names since the middle nineteen-sixties, was under the direct control of the White House.

well-informed members of the Nixon Administration had been kept in the dark.

In the last year, there have been repeated inquiries and publicly posed questions by members of Congress about the weather modification programs in Southeast Asia, but no accurate information has been provided to them by the Department of Defense.

"This kind of thing was a bomb, and Henry restricted information about it to those who had to know," said one well-placed Government official, referring to Henry A. Kissinger, the President's advisor on national security.

Nonetheless, the official said, "I understood it to be a spoiling action--that this was descriptive of what was going on north of the DMZ with the roads and the SAM sites."

Another source said that most of the weather modification activities eventually were conducted with the aid and support of the South Vietnamese. "I think we were trying to teach the South Vietnamese how to fly the cloud-seeding missions," the source said.

It was impossible to learn where the staffing and research for the secret weather operation were carried out. Sources at the Air Force Cambridge Research Laboratories at Hanscomb Field in Bedford, Mass., and at the Air Weather Service headquarters, while acknowledging that they had heard of the secret operation, said they had no information about its research center.

One Government source did say that a group was "now evaluating the program to see how much additional rain was caused." He would not elaborate.